CLAIMS:

1. In a multi-point communications system having a receiver and transmitter disposed at a primary site for communication with a plurality of remote units disposed at respective secondary sites, an antenna comprising:

multiple elements for receiving communications signals over a carrier frequency from a plurality of remote units, said elements being partitioned into groups disposed remote from one another by at least a predetermined minimum group spacing sufficient to obtain spatial diversity, each group containing at least one element, at least one group including multiple elements located proximate to one another and no further apart than a predetermined maximum element spacing to facilitate spatial filtering.

2. The antenna of claim 1, wherein said predetermined maximum element spacing is no more than one-half times a wavelength corresponding to the carrier frequency.

3. The antenna of claim 1, wherein said predetermined minimum group spacing is at least five times a wavelength corresponding to the carrier frequency.

4. The antenna of claim 1, wherein said multiple elements constitute an adaptive antenna array and each group constitutes a sub-array.

5. The antenna of claim 1, further comprising means for electronically steering said multiple elements.

6. The antenna of claim 1, wherein said multiple elements constitute a switched beam antenna array.

7. In a multi-point communications system having a receiver and transmitter disposed at a primary site for communication with a plurality of remote units disposed at respective secondary sites, a receiver subsystem comprising:

means for receiving communications signals over frequency bins allocated to a plurality of remote units at a plurality of reception points, said reception points being spaced apart by a predetermined minimum spacing sufficient to facilitate spatial filtering; and

means for spatially filtering received signals.

8. The receiver subsystem of claim 7, wherein said frequency bins are divided into neighborhoods, each neighborhood containing a unique set of at least two frequency bins, further comprising:

means for identifying a direction of arrival of communications signals from each remote unit; and

means for assigning remote units to frequency bins such that said frequency bins in at least one neighborhood are allocated to remote units having directions of arrival that are distinctly separable from one another.

9. The receiver subsystem of claim 7, wherein said receiving means further comprising an adaptive antenna array and means for electronically steering said adaptive antenna array.

10. The receiver subsystem of claim 7, wherein said receiving means further comprising a switched beam antenna array and means for electronically steering said switched beam antenna array.

11. The receiver subsystem of claim 7, further comprising means for resolving a direction of arrival of co-channel interference sources and of received communications signals and means for modifying a signal response pattern of the receiving means by focusing on received communications signals based on a direction of arrival of said communications signals.

12. The receiver subsystem of claim 7, further comprising:

means for identifying a direction of arrival of communications signals from the remote units; and

means for assigning remote units to frequency bins such that said frequency bins approximately adjacent to one another are allocated to remote units having directions of arrival that are distinctly separable from one another.

13. The receiver subsystem of claim 12, further comprising:

means for continuously monitoring at least one parameter of communications channels associated with active frequency bins and computing bin allocations based on said at least one parameter.

14. The receiver subsystem of claim 12, further comprising:

means for dynamically changing bin allocations in response to prevalent noise and interference conditions.

15. The receiver subsystem of claim 12, further comprising:

means for allocating multiple frequency bins to at least one remote unit, and spacing said multiple frequency bins remotely from one another in a frequency spectrum to minimize mutual interbin interference.

16. The receiver subsystem of claim 12, further comprising:

means for identifying frequency bins that contain co-channel interference and preventing allocation of remote units to frequency bins containing co-channel interference.

17. In a multi-point communications system having a receiver and transmitter disposed at a primary site for communication with a plurality of remote units disposed at respective secondary sites, each remote unit transmitting and receiving communications data in frequency bins allocated thereto, a method for allocation of frequency bins as communications channels to the remote units, comprising:

identifying a direction of arrival of communications signals from the remote units; and

assigning remote units to frequency bins such that said frequency bins approximately adjacent to one another are allocated to remote units having directions of arrival that are distinctly separable from one another.

18. The method of claim 17, further comprising continuously monitoring at least one parameter of the communications channels, and computing said bin allocations based on said at least one parameter.

19. The method of claim 17, further comprising dynamically changing frequency bin allocations in response to prevalent noise and interference conditions.

20. The method of claim 17, further comprising allocating multiple frequency bins to at least one remote unit, and spacing said multiple frequency bins remotely from one another in a frequency spectrum to minimize mutual interbin interference.

21. The method of claim 17, further comprising identifying frequency bins that contain co-channel interference,

and at least one of:

identifying a direction of arrival of co-channel interference; and

identifying a received power level of co-channel interference;

and preventing allocation of remote units to said frequency bins based on at least one of the received power level of co-channel interference and the direction of arrival of co-channel interference.

22. The method of claim 17, further comprising:

dividing frequency bins into neighborhoods, each neighborhood containing a unique set of frequency bins;

identifying a received signal power level of transmissions from remote units in use, said transmissions being received in active frequency bins;

determining differences between said received signal power levels in said active frequency bins of at least one neighborhood; and

reassigning remote units in use to active frequency bins such that said active frequency bins in at least one neighborhood have corresponding received signal power levels that differ by a minimal amount.

23. In a multi-point communications system having a receiver and transmitter disposed at a primary site for communication with a plurality of remote units disposed at respective secondary sites, each remote unit transmitting and receiving communications data in frequency bins allocated thereto, a method for allocation of frequency bins as communications channels to the remote units, comprising:

identifying a received signal power level of transmissions from remote units in use, said transmissions being received in active frequency bins;

determining differences between said received signal power levels in said active frequency bins of at least one neighborhood; and

reassigning remote units in use to active frequency bins such that said active frequency bins in at least one neighborhood have corresponding received signal power levels that differ by a minimal amount.

24. The method of claim 23, further comprising:

dividing frequency bins into neighborhoods, each neighborhood containing a unique set of frequency bins;

identifying a direction of arrival of communications signals from the remote units; and

assigning remote units to frequency bins such that said frequency bins in at least one neighborhood are allocated to remote units having directions of arrival that are remote from one another.

25. The method of claim 23, further comprising continuously monitoring at least one parameter of the communications channels, and computing said bin allocations based on said at least one parameter.

26. The method of claim 23, further comprising dynamically changing frequency bin allocations in response to prevalent noise and interference conditions.

27. The method of claim 23, further comprising allocating multiple frequency bins to at least one remote unit, and spacing said multiple frequency bins remotely from one another in a frequency spectrum to minimize mutual interbin interference.

28. The method of claim 23, further comprising identifying frequency bins that contain co-channel interference,

and at least one of:

identifying a direction of arrival of co-channel interference; and

identifying a received power level of co-channel interference;

and preventing allocation of remote units to said frequency bins based on at least one of the received power level of co-channel interference and the direction of arrival of co-channel interference.

29. A multi-point communications network comprising:

a receiver and transmitter disposed at a primary site;

a plurality of remote units disposed at respective secondary sites for communication with said receiver and transmitter at said primary site;

said primary site having an antenna including multiple elements for receiving communications signals over a carrier frequency from a plurality of remote units, said elements being partitioned into groups disposed remote from one another by at least a predetermined minimum group spacing sufficient to obtain spatial diversity, each group containing at least one element, at least one group including multiple elements located proximate to one another and no further apart than a predetermined maximum element spacing to facilitate spatial filtering.

30. The network of claim 29, wherein said predetermined maximum element spacing is no more than one-half times a wavelength corresponding to the carrier frequency.

31. The network of claim 29, wherein said predetermined minimum group spacing is at least five times a wavelength corresponding to the carrier frequency.

32. The network of claim 29, wherein said multiple elements constitute an adaptive antenna array and each group constitutes a sub-array.

33. The network of claim 29, wherein said antenna further comprises means for electronically steering said multiple elements.

34. The network of claim 29, wherein said multiple elements constitute a switched beam antenna array.